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United States Patent [19]

DiSanto et al.

[11] **Patent Number:** 5,250,938[45] **Date of Patent:** Oct. 5, 1993[54] **ELECTROPHORETIC DISPLAY PANEL
HAVING ENHANCED OPERATION**[75] **Inventors:** Frank J. DiSanto, North Hills; Denis
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N.Y.[21] **Appl. No.:** 960,572[22] **Filed:** Oct. 13, 1992**Related U.S. Application Data**[63] Continuation of Ser. No. 630,238, Dec. 19, 1990, aban-
doned.[51] **Int. Cl.⁵** G09G 3/34[52] **U.S. Cl.** 345/107; 345/55[58] **Field of Search** 340/787, 788, 792, 718,
340/719, 784, 815.2, 783; 359/54, 87, 62[56] **References Cited****U.S. PATENT DOCUMENTS**

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A triode-type electrophoretic display includes a glass viewing window upon which has been deposited a plurality of parallel cathode members. A plurality of grid members are deposited upon a layer of insulation above the cathode members and perpendicular thereto. A fluid-tight envelope encapsulating the cathode and grid members is formed by a glass cap having an conductor layer deposited on an interior surface for forming an anode. The glass cap seals against the viewing window. An electrophoretic fluid having pigmented particles suspended therein is contained in the envelope. The cathode and grid members have no free terminal ends within the fluid, instead, such ends extend beyond the fluid containing space and are covered by the cap. The cathode, grid and anode are selectively electrically chargeable to induce movement of the particles within the fluid, localized concentrations of particles at the intersections of the cathode and grid being visible through the viewing window.

12 Claims, 2 Drawing Sheets